

Application No. 09/768,991  
Amendment dated April 5, 2004  
Reply to Office Action of October 3, 2003

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (currently amended) A spinal implant for insertion at least in part across at least the height of a disc space between adjacent vertebral bodies of a human spine, said implant comprising:
  - opposed upper and lower surfaces adapted to be placed toward and in contact with each of the adjacent vertebral bodies, respectively, from within the disc space;
  - a leading end for insertion into the disc space and between the adjacent vertebral bodies;
  - a trailing end opposite said leading end, said trailing end having an exterior surface and an outer perimeter with an upper edge and a lower edge adapted to be oriented toward the adjacent vertebral bodies, respectively, said trailing end having a maximum height as measured from said upper edge to said lower edge along the longitudinal axis of the human spine, said maximum height being adapted to fit within the disc space and between the vertebral bodies adjacent to the disc space;
  - a bone screw having a leading end for placement in the vertebral body and a trailing end opposite said leading end adapted to cooperatively engage said implant so as to prevent further advancement of said bone screw into the bone and to be retained within one of said plurality of bone screw receiving holes of said implant; and
  - a plurality of bone screw receiving holes in said trailing end, at least one of which is adapted to only partially circumferentially surround said trailing end of said bone screw adapted to be received therein, at least one of said bone screw receiving holes passing through said exterior surface and one of said edges so as to permit said trailing end of said bone screw to protrude beyond

Application No. 09/768,991  
Amendment dated April 5, 2004  
Reply to Office Action of October 3, 2003

said one of said edges of said implant and overlies at least in part one of the adjacent vertebral bodies when said bone screw is inserted into said at least one bone screw receiving hole.

2. (original) The implant of claim 1, wherein said implant is a fusion implant.
3. (previously presented) The implant of claim 1, wherein a plane of said trailing end of said implant is curved.
4. (previously presented) The implant of claim 1, wherein said implant has a height equal to the distance between the adjacent vertebral bodies of a surgically corrected disc space.
5. (previously presented) The implant of claim 1, wherein said outer perimeter of said trailing end of said implant has at least one gap therein for permitting a portion of at least an outer diameter of said bone screw to protrude beyond said outer perimeter of said trailing end, said gap in said bone screw receiving hole dimensioned to be less than the outer diameter of said bone screw.
6. (original) The implant of claim 1, wherein at least one of said bone screw receiving holes passing through said exterior surface and one of said edges is C-shaped in cross section.
7. (previously presented) The implant of claim 1, wherein at least one of said bone screw receiving holes passing through said exterior surface and one of said edges has a partial circumference intersecting with the outer perimeter of said trailing end of said implant.
8. (previously presented) The implant of claim 1, wherein said trailing end of said implant is relieved to allow for a head of said bone screw inserted into one of said bone screw receiving holes to be at least partially recessed.
9. (original) The implant of claim 1, wherein at least two of said plurality of bone screw receiving holes are at different distances from the mid-longitudinal axis of said implant.
10. (previously presented) The implant of claim 1, wherein said trailing end of said implant is generally quadrilateral in shape.
11. (previously presented) The implant of claim 1, wherein at least one pair of said plurality of bone screw receiving holes are adapted to orient bone screws to be received therein

Application No. 09/768,991  
Amendment dated April 5, 2004  
Reply to Office Action of October 3, 2003

at an angle to a horizontal mid-longitudinal plane of said implant passing through said leading and trailing ends of said implant.

12. (original) The implant of claim 11, wherein said plurality of bone screw receiving holes includes a pair of screw receiving holes along said upper edge and a pair of screw receiving holes along said lower edge, one of said pair of bone screw receiving holes being adapted to position bone screws in a convergent relationship to one another.
13. (original) The implant of claim 12, wherein the other of said pair of bone screw receiving holes is adapted to position bone screws in a divergent relationship to one another.
14. (original) The implant of claim 11, wherein said angle is greater than 15 degrees and less than 60 degrees.
15. (previously presented) The implant of claim 1, further comprising at least one lock for retaining said bone screw within said implant.
16. (previously presented) The implant of claim 15, further comprising at least a second bone screw, said at least one lock retaining said at least two bone screws to said implant.

Claim 17. (cancelled)

18. (original) The implant of claim 1, wherein said implant comprises one of bone and bone growth promoting material.
19. (previously presented) The implant of claim 18, wherein said bone growth promoting material is at least one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
20. (original) The implant of claim 1, wherein said implant is treated with a bone growth promoting substance.
21. (original) The implant of claim 1, wherein said implant comprises at least one of the following materials: metal, titanium, plastic, and ceramic.
22. (original) The implant of claim 1, wherein said implant is formed of a porous material.
23. (original) The implant of claim 1, wherein said implant has an interior surface and a hollow defined therein, said hollow being capable of containing bone growth promoting material.

Application No. 09/768,991  
Amendment dated April 5, 2004  
Reply to Office Action of October 3, 2003

24. (previously presented) The implant of claim 23, wherein said bone growth promoting material is at least one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
25. (original) The implant of claim 1, in combination with a chemical substance to inhibit scar formation.
26. (previously presented) A spinal implant for insertion at least in part across at least the height of a disc space between adjacent vertebral bodies of a human spine, said implant comprising:
  - opposed upper and lower surfaces adapted to be placed toward and in contact with one each of the adjacent vertebral bodies, respectively, from within the disc space;
  - a leading end for insertion between the adjacent vertebral bodies; and
  - a trailing end opposite said leading end, said trailing end having an upper edge and a lower edge, said trailing end having a maximum height as measured from said upper edge to said lower edge along the longitudinal axis of the human spine, said maximum height being adapted to fit within the disc space and between the vertebral bodies adjacent to the disc space, said trailing end being adapted to only partially circumferentially surround the circumference of at least one bone screw adapted to be received therein, said trailing end of said implant being adapted to orient bone screws to be received therein in a divergent relationship to one another and at an angle to a horizontal mid-longitudinal plane of said implant passing through said leading and trailing ends of said implant.
27. (original) The implant of claim 26, wherein said implant is a fusion implant.
28. (original) The implant of claim 26, wherein said trailing end is curved.
29. (previously presented) The implant of claim 26, wherein said implant has a height equal to the distance between the adjacent vertebral bodies of a surgically corrected disc space.
30. (currently amended) The implant of claim 26, wherein at least one of said upper and lower edges of said trailing end has at least one gap therein for permitting a portion of at least an outer diameter of a bone screw to protrude beyond said at least one of said

Application No. 09/758,991  
Amendment dated April 5, 2004  
Reply to Office Action of October 3, 2003

upper and lower edges of said trailing end and overlie at least in part one of the adjacent vertebral bodies, said gap being dimensioned to be less than the outer diameter of the bone screw.

31. (original) The implant of claim 26, wherein said trailing end is relieved to allow for a head of a bone screw inserted into said trailing end to be at least partially recessed.

Claim 32. (cancelled)

33. (previously presented) The implant of claim 26, wherein said trailing end has a pair of screw receiving holes along said upper edge and a pair of screw receiving holes along said lower edge, one of said pair of bone screw receiving holes being adapted to position bone screws in a convergent relationship to one another.
34. (previously presented) The implant of claim 33, wherein the other of said pair of bone screw receiving holes is adapted to position bone screws in the divergent relationship to one another.
35. (previously presented) The implant of claim 26, further comprising at least one lock for retaining at least one of the bone screws within said implant.
36. (previously presented) The implant of claim 35, wherein said at least one lock retains at least two of the bone screws to said implant.
37. (previously presented) The implant of claim 26, further comprising at least one bone screw having a leading end for placement in the vertebral body and a trailing end opposite said leading end adapted to cooperatively engage said implant so as to prevent further advancement of said at least one bone screw into the bone and to be retained within said trailing end of said implant.
38. (original) The implant of claim 26, wherein said implant comprises one of bone and bone growth promoting material.
39. (previously presented) The implant of claim 38, wherein said bone growth promoting material is at least one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
40. (original) The implant of claim 26, wherein said implant comprises at least one of the following materials: metal, titanium, plastic, and ceramic.
41. (original) The implant of claim 26, wherein said implant has an interior surface

Application No. 09/768,991  
Amendment dated April 5, 2004  
Reply to Office Action of October 3, 2003

and a hollow defined therein, said hollow being capable of containing bone growth promoting material.

42. (previously presented) The implant of claim 41, wherein said bone growth promoting material is at least one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
43. (original) The implant of claim 26, in combination with a chemical substance to inhibit scar formation.
44. (currently amended) A spinal implant for insertion at least in part across at least the height of a disc space between adjacent vertebral bodies of a human spine, said implant comprising:
  - opposed upper and lower portions adapted to be placed toward and in contact with each one of the adjacent vertebral bodies, respectively, from within the disc space;
  - a leading end for insertion into the disc space and between the adjacent vertebral bodies; a trailing end opposite said leading end, said trailing end having an upper edge, a lower edge, and a maximum height as measured from said upper edge to said lower edge along the longitudinal axis of the human spine, said maximum height being adapted to fit within the disc space and between the vertebral bodies adjacent to the disc space, said trailing end being adapted to receive at least a portion of a bone screw passing therein that extends beyond said maximum height immediately adjacent thereto; and
  - said bone screw having a leading end for placement in the vertebral body and a trailing end opposite said leading end adapted to cooperatively engage said implant so as to prevent further advancement of said bone screw into the bone, said trailing end of said bone screw extending beyond said maximum height of said trailing end of said implant immediately adjacent thereto and overlying at least in part one of the adjacent vertebral bodies.
45. (original) The implant of claim 44, wherein said implant is a fusion implant.
46. (previously presented) The implant of claim 44, wherein said trailing end of said implant is curved.

Application No. 09/768,991  
Amendment dated April 5, 2004  
Reply to Office Action of October 3, 2003

47. (previously presented) The implant of claim 44, wherein said implant has a height equal to the distance between the adjacent vertebral bodies of a surgically corrected disc space.
48. (currently amended) The implant of claim 44, wherein at least one of said upper and lower edges of said trailing end of said implant has at least one gap therein for permitting a portion of at least an outer diameter of said bone screw to protrude beyond said at least one of said upper and lower edges of said trailing end of said implant, said gap being dimensioned to be less than the outer diameter of said bone screw.
49. (previously presented) The implant of claim 44, wherein said trailing end of said implant is relieved to allow for a head of said bone screw inserted into said trailing end of said implant to be at least partially recessed.
50. (previously presented) The implant of claim 44, wherein said trailing end of said implant is adapted to orient bone screws to be received therein at an angle to a horizontal mid-longitudinal plane of said implant passing through said leading and trailing ends of said implant.
51. (original) The implant of claim 50, wherein said trailing end has a pair of screw receiving holes along said upper edge and a pair of screw receiving holes along said lower edge, one of said pair of bone screw receiving holes being adapted to position bone screws in a convergent relationship to one another.
52. (original) The implant of claim 51, wherein the other of said pair of bone screw receiving holes is adapted to position bone screws in a divergent relationship to one another.
53. (previously presented) The implant of claim 44, further comprising at least one lock for retaining said bone screw within said implant.
54. (previously presented) The implant of claim 53, further comprising at least a second bone screw, said at least one lock retaining said at least two bone screws to said implant.
- Claim 55. (cancelled)
56. (original) The implant of claim 44, wherein said implant comprises one of bone and bone growth promoting material.
57. (previously presented) The implant of claim 56, wherein said bone growth

Application No. 09/768,991  
Amendment dated April 5, 2004  
Reply to Office Action of October 3, 2003

- promoting material is at least one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
58. (original) The implant of claim 44, wherein said implant comprises at least one of the following materials: metal, titanium, plastic, and ceramic.
59. (original) The implant of claim 44, wherein said implant has an interior surface and a hollow defined therein, said hollow being capable of containing bone growth promoting material.
60. (previously presented) The implant of claim 59, wherein said bone growth promoting material is at least one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
61. (original) The implant of claim 44, in combination with a chemical substance to inhibit scar formation.
62. (previously presented) A spinal implant for insertion at least in part across at least the height of a disc space between adjacent vertebral bodies of a human spine, said implant comprising:
- opposed upper and lower surfaces adapted to be placed toward and in contact with each one of the adjacent vertebral bodies, respectively, from within the disc space;
  - a leading end for insertion into the disc space and between the adjacent vertebral bodies; and
  - a trailing end opposite said leading end, said trailing end having a plurality of bone screw receiving holes, an upper edge, a lower edge, and a maximum height as measured from said upper edge to said lower edge along the longitudinal axis of the human spine, said maximum height being adapted to fit into the disc space and between the vertebral bodies adjacent to the disc space, said maximum height of said trailing end being adapted to be less than the sum of the maximum diameter of two bone screws adapted to be inserted in said bone screw receiving holes, said bone screw receiving holes being adapted to incompletely circumferentially receive at least one of the bone screws, at least one of said bone screw receiving holes interrupting only said upper edge of said



Application No. 09/768,991  
Amendment dated April 5, 2004  
Reply to Office Action of October 3, 2003

trailing end, and another one of said bone screw receiving holes interrupting only said lower edge of said trailing end.

63. (original) The implant of claim 62, wherein said implant is a fusion implant.
64. (original) The implant of claim 62, wherein said trailing end is curved.
65. (previously presented) The implant of claim 62, wherein said implant has a height equal to the distance between the adjacent vertebral bodies of a surgically corrected disc space.
66. (original) The implant of claim 62, wherein at least one of said upper and lower edges of said trailing end has at least one gap therein for permitting a portion of at least an outer diameter of a bone screw to protrude beyond said at least one of said upper and lower edges of said trailing end, said gap in said bone screw receiving hole dimensioned to be less than the outer diameter of the bone screw.
67. (original) The implant of claim 62, wherein at least one of said bone screw receiving holes is C-shaped in cross section.
68. (original) The implant of claim 62, wherein said trailing end is relieved to allow for a head of a bone screw inserted into one of said bone screw receiving holes to be at least partially recessed.
69. (original) The implant of claim 62, wherein at least one pair of said plurality of bone screw receiving holes are adapted to orient bone screws to be received therein at an angle to a horizontal mid-longitudinal plane of said implant passing through said leading and trailing ends.
70. (previously presented) The implant of claim 69, wherein said plurality of bone screw receiving holes includes a pair of screw receiving holes along said upper edge and a pair of screw receiving holes along said lower edge, one of said pair of bone screw receiving holes being adapted to position bone screws in a convergent relationship to one another.
71. (original) The implant of claim 70, wherein the other of said pair of bone screw receiving holes is adapted to position bone screws in a divergent relationship to one another.
72. (original) The implant of claim 62, further comprising at least one lock for retaining a bone screw within said implant.

Application No. 09/768,991  
Amendment dated April 5, 2004  
Reply to Office Action of October 3, 2003

73. (original) The implant of claim 72, wherein said at least one lock retains a plurality of bone screws to said implant.
74. (previously presented) The implant of claim 62, further comprising at least one bone screw having a leading end for placement in the vertebral body and a trailing end opposite said leading end adapted to cooperatively engage said implant so as to prevent further advancement of said at least one bone screw into the bone and to be retained within one of said plurality of bone screw receiving holes of said implant.
75. (original) The implant of claim 62, wherein said implant comprises one of bone and bone growth promoting material.
76. (previously presented) The implant of claim 75, wherein said bone growth promoting material is at least one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
77. (original) The implant of claim 62, wherein said implant comprises at least one of the following materials: metal, titanium, plastic, and ceramic.
78. (original) The implant of claim 62, wherein said implant has an interior surface and a hollow defined therein, said hollow being capable of containing bone growth promoting material.
79. (previously presented) The implant of claim 62, wherein said bone growth promoting material is at least one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
80. (original) The implant of claim 62, in combination with a chemical substance to inhibit scar formation.
81. (previously presented) A spinal fusion implant for insertion at least in part across at least the height of a disc space between adjacent vertebral bodies of a human spine, said implant comprising:
  - opposed upper and lower surfaces adapted to be placed toward and in contact with each of the opposed adjacent vertebral bodies, respectively, from within the disc space;
  - a leading end for insertion into the disc space and between the adjacent vertebral bodies;

Application No. 09/768,991  
Amendment dated April 5, 2004  
Reply to Office Action of October 3, 2003

a trailing end opposite said leading end, said trailing end having an exterior surface and an outer perimeter with an upper edge and a lower edge adapted to be oriented toward the adjacent vertebral bodies, respectively, said trailing end having a maximum height as measured from said upper edge to said lower edge along the longitudinal axis of the human spine, said maximum height being adapted to fit within the disc space and between the vertebral bodies adjacent to the disc space; and

a plurality of bone screw receiving holes in said trailing end, at least one of which is adapted to only partially circumferentially surround the trailing end of a bone screw adapted to be received therein, at least one of said screw receiving holes passing through said exterior surface and one of said edges so as to permit the bone screw to protrude over one of said edges within a plane of said trailing end; and

at least one bone screw, said at least one bone screw having:

a leading end for placement in the vertebral body; and

a trailing end opposite said leading end, said trailing end of said bone screw adapted to cooperatively engage said implant so as to prevent further advancement of said at least one bone screw into the bone and to be retained within said implant, said trailing end of said at least one bone screw protruding over one of said edges within a plane of said trailing end of said implant when inserted into said at least one of said bone screw receiving holes.

82. (original) The implant of claim 81, wherein said implant is a fusion implant.
83. (previously presented) The implant of claim 81, wherein said plane of said trailing end of said implant is curved.
84. (previously presented) The implant of claim 81, wherein said implant has a height equal to the distance between the adjacent vertebral bodies of a surgically corrected disc space.
85. (previously presented) The implant of claim 81, wherein said outer perimeter of said trailing end of said implant has at least one gap therein for permitting a portion of at least an outer diameter of said at least one bone screw to protrude beyond the outer

Application No. 09/768,991  
Amendment dated April 5, 2004  
Reply to Office Action of October 3, 2003

- perimeter of said trailing end, said gap in said bone screw receiving hole dimensioned to be less than the outer diameter of said at least one bone screw.
86. (original) The Implant of claim 81, wherein at least one of said bone screw receiving holes passing through said exterior surface and one of said edges is C-shaped in cross section.
87. (previously presented) The implant of claim 81, wherein at least one of said bone screw receiving holes passing through said exterior surface and one of said edges has a partial circumference intersecting with the outer perimeter of said trailing end of said implant.
88. (previously presented) The implant of claim 81, wherein said trailing end of said implant is relieved to allow for a head of said at least one bone screw inserted into one of said bone screw receiving holes to be at least partially recessed.
89. (previously presented) The implant of claim 81, wherein at least one pair of said plurality of bone screw receiving holes are adapted to orient bone screws to be received therein at an angle to a horizontal mid-longitudinal plane of said implant passing through said leading and trailing ends of said implant.
90. (original) The implant of claim 89, wherein said plurality of bone screw receiving holes includes a pair of screw receiving holes along said upper edge and a pair of screw receiving holes along said lower edge, one of said pair of bone screw receiving holes being adapted to position bone screws in a convergent relationship to one another.
91. (original) The implant of claim 90, wherein the other of said pair of bone screw receiving holes is adapted to position bone screws in a divergent relationship to one another.
92. (previously presented) The implant of claim 81, further comprising at least one lock for retaining at least one of said at least one bone screw within said implant.
93. (previously presented) The implant of claim 92, further comprising at least a second bone screw, said at least one lock retaining said at least two bone screws to said implant.
94. (original) The implant of claim 81, wherein said implant comprises one of bone and bone growth promoting material.
95. (previously presented) The implant of claim 94, wherein said bone growth

Application No. 09/768,991  
Amendment dated April 5, 2004  
Reply to Office Action of October 3, 2003

promoting material is at least one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.

96. (original) The implant of claim 81, wherein said implant comprises at least one of the following materials: metal, titanium, plastic, and ceramic.
97. (original) The implant of claim 81, wherein said implant has an interior surface and a hollow defined therein, said hollow being capable of containing bone growth promoting material.
98. (previously presented) The implant of claim 97, wherein said bone growth promoting material is at least one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
99. (original) The implant of claim 81, in combination with a chemical substance to inhibit scar formation.
100. (previously presented) An interbody spinal implant for insertion at least in part across at least the height of a disc space between adjacent vertebral bodies of a human spine, said implant comprising:
  - opposed upper and lower surfaces adapted to be placed toward and in contact with each of the adjacent vertebral bodies, respectively, from within the disc space;
  - a leading end for insertion into the disc space between the adjacent vertebral bodies;
  - a trailing end opposite said leading end, said trailing end having an exterior surface and an outer perimeter with an upper edge and a lower edge adapted to be oriented toward the adjacent vertebral bodies, respectively, said trailing end having a maximum height as measured from said upper edge to said lower edge along the longitudinal axis of the human spine, said maximum height being adapted to fit within the disc space and between the vertebral bodies adjacent to the disc space; and
  - at least two bone screw receiving holes, at least one of said bone screw receiving holes proximate said upper edge of said outer perimeter having a single gap therein for permitting a portion of a bone screw to protrude over said

Application No. 09/768,991  
Amendment dated April 5, 2004  
Reply to Office Action of October 3, 2003

upper edge of the outer perimeter of said trailing end within a plane of said trailing end, at least a second one of said bone screw receiving holes proximate said lower edge of said outer perimeter having a single gap therein for permitting a portion of another bone screw to protrude over said lower edge of the outer perimeter of said trailing end within a plane of said trailing end, each of said gaps being sufficient to retain a trailing end of a respective bone screw.

101. (original) The implant of claim 100, wherein said implant is a fusion implant.
102. (original) The implant of claim 100, wherein said trailing end is curved.
103. (previously presented) The implant of claim 100, wherein said implant has a height equal to the distance between the adjacent vertebral bodies of a surgically corrected disc space.
104. (previously presented) The implant of claim 100, wherein at least one of said bone screw receiving holes passes through said exterior surface and one of said edges and is C-shaped in cross section.
105. (previously presented) The implant of claim 100, wherein at least one of said bone screw receiving holes passes through said exterior surface and one of said edges and has a partial circumference intersecting with the outer perimeter of said trailing end.
106. (original) The implant of claim 100, wherein said trailing end is relieved to allow for a head of a bone screw inserted into one of said bone screw receiving holes to be at least partially recessed.
107. (previously presented) The implant of claim 100, wherein said trailing end is adapted to orient bone screws to be received therein at an angle to a horizontal mid-longitudinal plane of said implant passing through said leading and trailing ends.
108. (previously presented) The Implant of claim 107, wherein said at least two bone screw receiving holes includes a pair of screw receiving holes along said upper edge and a pair of screw receiving holes along said lower edge, one of said pair of bone screw receiving holes being adapted to position at least two bone screws in a convergent relationship to one another.
109. (previously presented) The implant of claim 108, wherein the other of said pair of bone screw receiving holes is adapted to position at least two other bone screws in a

Application No. 09/768,991  
Amendment dated April 5, 2004  
Reply to Office Action of October 3, 2003

divergent relationship to one another.

110. (original) The implant of claim 100, further comprising at least one lock for retaining a bone screw within said implant.
111. (original) The implant of claim 110, wherein said at least one lock retains a plurality of bone screws to said implant.
112. (previously presented) The implant of claim 100, further comprising at least one bone screw having a leading end for placement in the vertebral body and a trailing end opposite said leading end adapted to cooperatively engage said implant so as to prevent further advancement of said at least one bone screw into the bone and to be retained of said implant.
113. (original) The implant of claim 100, wherein said implant comprises one of bone and bone growth promoting material.
114. (previously presented) The implant of claim 113, wherein said bone growth promoting material is at least one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
115. (original) The implant of claim 100, wherein said implant comprises at least one of the following materials: metal, titanium, plastic, and ceramic.
116. (original) The implant of claim 100, wherein said implant has an interior surface and a hollow defined therein, said hollow being capable of containing bone growth promoting material.
117. (previously presented) The implant of claim 116, wherein said bone growth promoting material is at least one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.
118. (previously presented) The implant of claim 100, in combination with a chemical substance to inhibit scar formation.
119. (previously presented) The implant of claim 1, further in combination with a fusion promoting substance.
120. (previously presented) The implant of claim 119, wherein said fusion promoting substance is bone morphogenetic protein.
121. (previously presented) The implant of claim 119, wherein said fusion promoting

Application No. 09/768,991  
Amendment dated April 5, 2004  
Reply to Office Action of October 3, 2003

substance includes hydroxyapatite.

122. (previously presented) The implant of claim 119, wherein said fusion promoting substance is genes coding for the production of bone.
123. (previously presented) The implant of claim 119, wherein said fusion promoting substance is bone.
124. (previously presented) The implant of claim 26, further in combination with a fusion promoting substance.
125. (previously presented) The implant of claim 124, wherein said fusion promoting substance is bone morphogenetic protein.
126. (previously presented) The implant of claim 124, wherein said fusion promoting substance includes hydroxyapatite.
127. (previously presented) The implant of claim 124, wherein said fusion promoting substance is genes coding for the production of bone.
128. (previously presented) The implant of claim 124, wherein said fusion promoting substance is bone.
129. (previously presented) The implant of claim 44, further in combination with a fusion promoting substance.
130. (previously presented) The implant of claim 129, wherein said fusion promoting substance is bone morphogenetic protein.
131. (previously presented) The implant of claim 129, wherein said fusion promoting substance includes hydroxyapatite.
132. (previously presented) The implant of claim 129, wherein said fusion promoting substance is genes coding for the production of bone.
133. (previously presented) The implant of claim 129, wherein said fusion promoting substance is bone.
134. (previously presented) The implant of claim 62, further in combination with a fusion promoting substance.
135. (previously presented) The implant of claim 134, wherein said fusion promoting substance is bone morphogenetic protein.
136. (previously presented) The implant of claim 134, wherein said fusion promoting



Application No. 09/768,991  
Amendment dated April 5, 2004  
Reply to Office Action of October 3, 2003

substance includes hydroxyapatite.

137. (previously presented) The implant of claim 134, wherein said fusion promoting substance is genes coding for the production of bone.
138. (previously presented) The implant of claim 134, wherein said fusion promoting substance is bone.
139. (previously presented) The implant of claim 81, further in combination with a fusion promoting substance.
140. (previously presented) The implant of claim 139, wherein said fusion promoting substance is bone morphogenetic protein.
141. (previously presented) The implant of claim 139, wherein said fusion promoting substance includes hydroxyapatite.
142. (previously presented) The implant of claim 139, wherein said fusion promoting substance is genes coding for the production of bone.
143. (previously presented) The implant of claim 139, wherein said fusion promoting substance is bone.
144. (previously presented) The implant of claim 100, further in combination with a fusion promoting substance.
145. (previously presented) The implant of claim 144, wherein said fusion promoting substance is bone morphogenetic protein.
146. (previously presented) The implant of claim 144, wherein said fusion promoting substance includes hydroxyapatite.
147. (previously presented) The implant of claim 144, wherein said fusion promoting substance is genes coding for the production of bone.
148. (previously presented) The implant of claim 144, wherein said fusion promoting substance is bone.
149. (previously presented) The implant of claim 1, wherein at least one of said bone screw receiving holes passes through said upper edge and at least one of said bone screw receiving holes passes through said lower edge of said trailing end.
150. (previously presented) The implant of claim 26, further comprising a plurality of bone screw receiving holes, at least one of said bone screw receiving holes

Application No. 09/768,991  
Amendment dated April 5, 2004  
Reply to Office Action of October 3, 2003

passing through said upper edge and at least one of said bone screw receiving holes passing through said lower edge of said trailing end.

Claim 151. (cancelled)

152. (previously presented) The implant of claim 81, wherein at least one of said bone screw receiving holes passes through said upper edge and at least one of said bone screw receiving holes passes through said lower edge of said trailing end.
153. (previously presented) The implant of claim 1, in combination with a bone removal device for forming an implantation space at least in part between the adjacent vertebral bodies for receiving at least a portion of said implant.
154. (previously presented) The implant of claim 153, wherein said bone removal device is a milling instrument.
155. (previously presented) The implant of claim 153, in combination with an implant driver configured to insert said implant at least in part into the implantation space formed by said bone removal device.
156. (previously presented) The implant of claim 1, in combination with an instrument for forming a bone screw receiving hole into one of the vertebral bodies.
157. (previously presented) The implant of claim 156, wherein said instrument is one of an awl, a spike, and a drill.
158. (previously presented) The implant of claim 156, in combination with a guide having an end configured to cooperatively engage said trailing end of said implant to guide said instrument through one of said bone screw receiving holes of said implant.
159. (previously presented) The implant of claim 1, in combination with a screw driver configured to install at least one bone screw into said bone screw receiving holes and into the bone of a vertebral body.
160. (previously presented) The implant of claim 26, in combination with a bone removal device for forming an implantation space at least in part between the adjacent vertebral bodies for receiving at least a portion of said implant.
161. (previously presented) The implant of claim 160, wherein said bone removal device is a milling instrument.

Application No. 09/768,991  
Amendment dated April 5, 2004  
Reply to Office Action of October 3, 2003

162. (previously presented) The implant of claim 160, in combination with an implant driver configured to insert said implant at least in part into the implantation space formed by said bone removal device.
163. (previously presented) The implant of claim 26, in combination with an instrument for forming a bone screw receiving hole into one of the vertebral bodies.
164. (previously presented) The implant of claim 163, wherein said instrument is one of an awl, a spike, and a drill.
165. (previously presented) The implant of claim 163, in combination with a guide having an end configured to cooperatively engage said trailing end of said implant to guide said instrument through one of said bone screw receiving holes of said implant.
166. (previously presented) The implant of claim 26, in combination with a screw driver configured to install at least one bone screw into said bone screw receiving holes and into the bone of a vertebral body.
167. (previously presented) The implant of claim 44, in combination with a bone removal device for forming an implantation space at least in part between the adjacent vertebral bodies for receiving at least a portion of said implant.
168. (previously presented) The implant of claim 167, wherein said bone removal device is a milling instrument.
169. (previously presented) The implant of claim 167, in combination with an implant driver configured to insert said implant at least in part into the implantation space formed by said bone removal device.
170. (previously presented) The implant of claim 44, in combination with an instrument for forming a bone screw receiving hole into one of the vertebral bodies.
171. (previously presented) The implant of claim 170, wherein said instrument is one of an awl, a spike, and a drill.
172. (previously presented) The implant of claim 170, in combination with a guide having an end configured to cooperatively engage said trailing end of said

Application No. 09/768,991  
Amendment dated April 5, 2004  
Reply to Office Action of October 3, 2003

implant to guide said instrument through one of said bone screw receiving holes of said implant.

173. (previously presented) The implant of claim 44, in combination with a screw driver configured to install at least one bone screw into said bone screw receiving holes and into the bone of a vertebral body.
174. (previously presented) The implant of claim 62, in combination with a bone removal device for forming an implantation space at least in part between the adjacent vertebral bodies for receiving at least a portion of said implant.
175. (previously presented) The implant of claim 174, wherein said bone removal device is a milling instrument.
176. (previously presented) The implant of claim 174, in combination with an implant driver configured to insert said implant at least in part into the implantation space formed by said bone removal device.
177. (previously presented) The implant of claim 62, in combination with an instrument for forming a bone screw receiving hole into one of the vertebral bodies.
178. (previously presented) The implant of claim 177, wherein said instrument is one of an awl, a spike, and a drill.
179. (previously presented) The implant of claim 177, in combination with a guide having an end configured to cooperatively engage said trailing end of said implant to guide said instrument through one of said bone screw receiving holes of said implant.
180. (previously presented) The implant of claim 62, in combination with a screw driver configured to install at least one bone screw into said bone screw receiving holes and into the bone of a vertebral body.
181. (previously presented) The implant of claim 81, in combination with a bone removal device for forming an implantation space at least in part between the adjacent vertebral bodies for receiving at least a portion of said implant.
182. (previously presented) The implant of claim 181, wherein said bone removal device is a milling instrument.

Application No. 09/768,991  
Amendment dated April 5, 2004  
Reply to Office Action of October 3, 2003

183. (previously presented) The implant of claim 181, in combination with an implant driver configured to insert said implant at least in part into the implantation space formed by said bone removal device.
184. (previously presented) The implant of claim 81, in combination with an instrument for forming a bone screw receiving hole into one of the vertebral bodies.
185. (previously presented) The implant of claim 184, wherein said instrument is one of an awl, a spike, and a drill.
186. (previously presented) The implant of claim 184, in combination with a guide having an end configured to cooperatively engage said trailing end of said implant to guide said instrument through one of said bone screw receiving holes of said implant.
187. (previously presented) The implant of claim 81, in combination with a screw driver configured to install at least one bone screw into said bone screw receiving holes and into the bone of a vertebral body.
188. (previously presented) The implant of claim 100, in combination with a bone removal device for forming an implantation space at least in part between the adjacent vertebral bodies for receiving at least a portion of said implant.
189. (previously presented) The implant of claim 188, wherein said bone removal device is a milling instrument.
190. (previously presented) The implant of claim 188, in combination with an implant driver configured to insert said implant at least in part into the implantation space formed by said bone removal device.
191. (previously presented) The implant of claim 100, in combination with an instrument for forming a bone screw receiving hole into one of the vertebral bodies.
192. (previously presented) The implant of claim 191, wherein said instrument is one of an awl, a spike, and a drill.
193. (previously presented) The implant of claim 191, in combination with a guide having an end configured to cooperatively engage said trailing end of said

Application No. 09/768,991  
Amendment dated April 5, 2004  
Reply to Office Action of October 3, 2003

implant to guide said instrument through one of said bone screw receiving holes of said implant.

194. (previously presented) The implant of claim 100, in combination with a screw driver configured to install at least one bone screw into said bone screw receiving holes and into the bone of a vertebral body.
195. (previously presented) The implant of claim 1, wherein at least one of said bone screw receiving holes interrupts said upper edge of said perimeter of said trailing end of said implant and at least another one of said bone screw receiving holes interrupts said lower edge of said perimeter of said trailing end of said implant.
196. (previously presented) The Implant of claim 26, further comprising a plurality of bone screw receiving holes in said trailing end, at least one of said bone screw receiving holes interrupts said upper edge of said perimeter of said trailing end of said implant and at least another one of said bone screw receiving holes interrupts said lower edge of said perimeter of said trailing end of said implant.
197. (previously presented) The implant of claim 44, further comprising a plurality of bone screw receiving holes in said trailing end, at least one of said bone screw receiving holes interrupts said upper edge of said perimeter of said trailing end of said implant and at least another one of said bone screw receiving holes interrupts said lower edge of said perimeter of said trailing end of said implant.
198. (previously presented) The Implant of claim 81, wherein at least one of said bone screw receiving holes interrupts said upper edge of said perimeter of said trailing end of said implant and at least another one of said bone screw receiving holes interrupts said lower edge of said perimeter of said trailing end of said implant.
199. (new) The implant of claim 1, wherein each of said bone screw receiving holes is configured to position said bone screw therein at an angle to a vertical mid-longitudinal plane of said implant passing through said leading and trailing ends of said implant.
200. (new) The implant of claim 26, wherein said trailing end is configured to position each of the bone screws received therein at an angle to a vertical mid-longitudinal plane of said implant passing through said leading and trailing ends

Application No. 09/768,991  
Amendment dated April 5, 2004  
Reply to Office Action of October 3, 2003

of said implant.

201. (new) The implant of claim 44, wherein said trailing end of said implant is configured to position said bone screw received therein at an angle to a vertical mid-longitudinal plane of said implant passing through said leading and trailing ends of said implant.
202. (new) The implant of claim 62, wherein each of said bone screw receiving holes is configured to position one of the bone screws therein at an angle to a vertical mid-longitudinal plane of said implant passing through said leading and trailing ends of said implant.
203. (new) The implant of claim 81, wherein each of said bone screw receiving holes is configured to position one bone screw therein at an angle to a vertical mid-longitudinal plane of said implant passing through said leading and trailing ends of said implant.
204. (new) The implant of claim 100, wherein each of said bone screw receiving holes is configured to position one bone screw therein at an angle to a vertical mid-longitudinal plane of said implant passing through said leading and trailing ends of said implant.